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ABSTRACT

This study investigated quality of effort, place of residence, perception of the environment, and students' opinions of college. Seven independent variables were investigated: personal and social development; general education, literature and arts; intellectual skills; understanding science and technology; vocation; perception of environment; and place of residence. Two dependent variables were employed: satisfaction, and initiative/benefits. The College Student Experiences questionnaire was administered to 196 students at a four-year university. Results indicated that: (1) subjects with intermediate and high vocation scores had higher satisfaction than those with low vocation scores; (2) subjects with high intellectual skills registered greater initiative/benefits than those with low intellectual skills; (3) the numerically highest satisfaction was reported by subjects who had high personal and social development and high intellectual skills, and the numerically lowest satisfaction was reported by subjects with intermediate personal and social development and high intellectual skills; (4) the numerically highest initiative/benefits was reported by subjects who had low personal and social development and high intellectual skills, and the numerically lowest initiative/benefits was reported by subjects who had low personal and social development and low intellectual skills; and (5) independent variables not associated with either dependent variable were: understanding science and technology; perception of environment; place of residence; and general education, literature, and arts. (LLL)

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QUALITY OF EFFORT, PLACE OF RESIDENCE, PERCEPTION OF THE ENVIRONMENT AND STUDENTS' OPINIONS OF COLLEGE

being

A Thesis Presented to the Graduate Faculty
of the Fort Hays State University in
Partial Fulfillment of the Requirements for
the Degree of Master of Science

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Graduate Committee Approval

The Graduate Committee of Barbara E. Thoman hereby approves her thesis as meeting partial fulfillment of the requirements for the Master of Science degree at Fort Hays State University.

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Abstract

The purpose of the researcher was to investigate quality of effort, place of residence, perception of the environment and students' opinions of college. Seven independent variables were investigated: personal and social development, general education, literature, and arts, intellectual skills, understanding science/technology, vocation, perception of environment and place of residence. Two dependent variables were employed, satisfaction and initiative/benefits. The College Student Experiences (CSE) questionnaire was used for 196 full-time students at a four-year university. Five composite null hypotheses were tested using 3 x 3 x 3 factorial designs. Forty-two comparisons plus 28 recurring were made. Of the 42 comparisons 14 were for main effects and 28 were for interactions. Of the 14 main effects 2 were statistically significant at the .05 level. The two significant main effects were: vocation and the dependent variable satisfaction and intellectual skills and the dependent variable initiative/benefits. Two of the 28 interactions were significant at the .05 level. The two significant interactions were: personal and social development with intellectual skills for the dependent variable satisfaction

and personal and social development with intellectual skills for the dependent variable initiative/benefits.

The following generalizations were supported:

1. Intermediate and high vocation scores were associated with greater satisfaction than low vocation scores.
2. High intellectual skills were associated with higher initiative/benefits than low intellectual skills.
3. The numerically highest satisfaction was reported by subjects who had high personal and social development and high intellectual skills. The numerically lowest satisfaction was reported by subjects with intermediate personal and social development and high intellectual skills.
4. The numerically highest initiative/benefits was reported by subjects who had low personal and social development and high intellectual skills. The numerically lowest initiative/benefits was reported by subjects who had low personal and social development and low intellectual skills.
5. Independent variables not associated with either dependent variable were: understanding science/technology, perception of environment, place of residence, and general education, literature, and arts.

Introduction

Quality of experience as defined by Pace suggested that "all learning and development require an investment of time and effort by the students" (Pace, 1984, p. 5). What students can gain from the variety of events and experiences available in the college setting depends on the amount, scope, and quality of their engagement in these events. Quality of experience and quality of effort are related concepts in that, if a student has had a high quality of experience it is most likely a result of high quality of effort (Pace, 1984). The quality of effort concept was incorporated into Astin's theory of student involvement. The involvement theory had five basic postulates (Astin, 1984, p. 298):

1. Involvement refers to the investment of physical and psychological energy in various objects. The objects may be highly generalized (the student experience) or highly specific (preparing for a chemistry examination).
2. Regardless of its object, involvement occurs along a continuum; that is, different students manifest different degrees of involvement in a given object, and the same student manifests different degrees of involvement in different objects at different times.

3. Involvement has both quantitative and qualitative features. The extent of a student's involvement in academic work, for instance can be measured quantitatively (how many hours the student spends studying) and qualitatively (whether the student reviews and comprehends reading assignments or simply stares at the textbook and daydreams).

4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program.

5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement.

Astin's (1984) involvement theory emphasized that the more students were committed to all aspects of the educational experience the more likely they would succeed in and be satisfied with their college experience. Astin (1985) and Pace (1984) agreed that colleges and universities should be accountable for their curriculum and array of resources that elicit enough student effort and energy to bring about learning and development. The student, however, should be responsible for the amount, scope, and quality of effort he/she invests in college.

Astin (1985) purported that the higher the student involvement the greater the learning and development. Involvement occurred in many forms: absorption in academic work, participation in extracurricular activities, and interactions with faculty and college personnel. Astin (1975) maintained that highly involved students spent considerable time on campus, participated actively in student organizations, and interacted frequently with faculty members and other students. The reverse was true for the non-involved student. Dropping out was the ultimate form of non-involvement. Astin's longitudinal study of college dropouts was aimed at identifying factors in the college environment that significantly affected student persistence in college. Astin (1985, pp. 144-145) later reflected on what he had found:

> As it turned out, virtually every significant effect could be explained in terms of the involvement concept. Every positive factor was one that would be likely to increase student involvement in the undergraduate experience, while every negative factor was one that would be likely to reduce involvement.

Campus factors found to be associated with student persistence in college were: effective academic and career advising, living in a campus residence, working on campus, involvement in campus activities, having the friendship of

a faculty or staff member, making the proper institutional fit, attending full time, interacting frequently with students, faculty, and staff, and gaining progress toward a goal (Astin, 1975). The factors cited above were by-products of student involvement in their learning and development (National Institute of Higher Education study group, cited in Webb, 1987).

Relatively few studies have been conducted dealing with the impact of college students' involvement or their quality of effort. Pace developed the College Student Experiences (CSE) questionnaire to measure the concept of quality of effort in the university student (Songer, 1987). Friedlander (1980) analyzed the CSE questionnaire, using 3,006 undergraduate students from 11 colleges and universities. He found that the Quality of Effort scales were positively related to scores on different measures of attainment. The greater the effort students invested in taking advantage of opportunities available in the college the greater gains they made toward related objectives. Multiple regression analysis revealed that quality of student effort was the most important factor in accounting for student's attainment of college objectives, and that after measures of student background characteristics, college experiences, and environmental factors had been taken into account, quality of effort still made a

substantial additional contribution to the prediction of achievement. Other major findings were: (1) In each of the categories--amount of time spent studying, year in college, place of residence during the freshman year, and college grade point average--there were substantial differences among students in the quality of effort invested in using the opportunities available in the college setting. These differences in quality of effort were positively related to the gains students made toward the attainment of important educational objectives. (2) The quality of effort students put into using the learning resources and opportunities available in the college setting was a greater determiner of their achievement than each of the following variables--amount of time spent studying, year in college, college grade point average, and place of residence during the freshman year.

Porter (1982) identified factors which discriminated among institutional environments. The underlying theoretical assumption was that institutional environment was a function of the interaction of student characteristics and institutional opportunities. Porter used the Quality of Effort scales to test this theory at six private colleges. He found that at least 7 of the 14 Quality of Effort scales discriminated among the six colleges. The Quality of Effort scales discriminated more

often than student characteristics, college experiences variables, and progress/gains variables. However, student perceptions of environment discriminated as well as the Quality of Effort scales. Regression analysis indicated that quality of effort did not explain more variance than other environmental descriptors. Porter concluded that the use of the environmental perspectives offered by the CSE questionnaire provided insights into the nature of college uniqueness.

Background Information

Individuals enter colleges and universities with a variety of individual attributes (gender, race, ability), precollege experiences (grade point average, academic and social attainments), and family background (social status, values, expectations), each of which has direct and indirect impacts upon performance in college. These background characteristics and individual attributes also influence development of the educational expectations and commitments the individual brings into the college environment. It was these initial goals and institutional commitments which were important predictors and reflections of the person's experiences, disappointments, and satisfactions within the college environment (Tinto, 1975). Students' expectations of the college or university were in many ways met with contradictory experiences (Vaughn,

1972). Astin, Korn, and Green (1987) found that upper division students were more critical of the college than lower division students. Schmidt's and Sedlacek's (1972) results indicated that new students had a low anticipated dissatisfaction (expectation) compared to the relatively high level of anticipated dissatisfaction (attitude) on the part of previously enrolled students. Darkenwald and Gavin (1987) found that discrepancies between students' expectations of the social- environmental attributes of the classroom and their actual experiences in the classroom promoted dissatisfaction.

Lokitz and Sprandel (1976) conducted a study of 130 freshmen using an attitude scale designed to determine the general mood of the students at various times during the school year. Students' moods were measured in four categories: academic, social, family, and financial. Scales ranged from 1, very depressed, to 9, very satisfied. In addition to the attitude scales, five questions on overall reactions to their first year in college were asked. When students were asked if they were satisfied with college 83% said "Yes", 14% said it was "OK", and 3% responded negatively. Lokitz and Sprandel concluded, that it might have indicated that students' initial expectations became more closely aligned with realistic expectations of the university experience over time.

Sturtz (1971) studied the difference in levels of satisfaction in adult (age 25 and up) and young (age 18 to 21) female students. The difference in age brought about different needs and expectations. Sturtz found that adult female students were generally more satisfied with college than young female students. All students were more satisfied with the quality of education than they were with college policies and procedures.

Schmidt and Sedlacek (1972) determined that choosing or selecting a major field was the most difficult part of adjusting to college and led to the greatest dissatisfaction. Hecklinger (1972) also found that when students were undecided they had lower levels of satisfaction with faculty, administrators, major field, and relationships with other students than did the decided students.

Bean and Bradley (1986) conducted a study to assess the degree of reciprocity between performance and satisfaction of college students. The sample contained 1,518 students who met the following criteria: Caucasian, citizen of the United States, maximum age of 23, unmarried, and enrolled in 10 or more credit hours. They expected that upper division students would be less satisfied with college but would receive higher grades than beginning students. Controlling for other factors in the model,

class level failed to have any significant influence on either satisfaction or grade point average. Brenner (1983) analyzed responses to the CSE questionnaire according to gender, marital status, and parental status. The sample included 276 undergraduate students, 30 years old or older, enrolled at Oregon State University. The conclusions of the researchers were: (1) There was no significant difference in the quality of effort between married and non-married students. (2) There was no significant difference in the quality of effort between students with children and students without children in the home. (3) There was no significant difference in the quality of effort between female and male students. (4) There was no significant difference in the students' perceptions of educational gains between married and non-married students. (5) There was a significant difference in the students' perceptions of educational gains between students with children and students without children in the home. (6) There was no significant difference in the students' perceptions of educational gain between female and male students.

Edwards and Waters (1982) examined the relationship of academic job involvement and other relevant variables to college attrition. The sample included 223 undergraduates enrolled in a freshman psychology course. They did a

multiple regression analysis with academic job involvement, course satisfaction, first quarter grade point average, and satisfaction with the college in general. Satisfaction with college in general and first quarter grade point average were the only variables that added significantly to the prediction of attrition.

The annual freshman survey of the University of California, Los Angeles Cooperative Institutional Research Program (CIRP) provided information on retention as well as new national data on student satisfaction (Astin, Korn, & Green, 1987). Twenty-one different aspects of undergraduate experience were assessed. After 2 years in college, students seemed to be the least satisfied with personal services such as career counseling and advising, academic advising, financial aid, and job placement. After 4 years of college, students seemed to be least satisfied with the same four services. Moderate levels of satisfaction were found with campus health services, student housing, academic assistance, and amount of contact with faculty and administrators. After 2 years of college, students reported the most satisfaction with courses in their major field and library facilities. Satisfaction with humanities courses, extracurricular activities, opportunities to talk with professors, and the overall quality of instruction ran high for both upper and lower

division students. Overall satisfaction with the college experience also ran relatively high after 2 and after 4 years of college, being just slightly higher after 2 years.

A study based on national data from 10,326 CIRP survey respondents in 1971 obtained information on family background, high school experience, aspirations, and attitude. A follow-up study of these respondents was conducted in 1980 and focused on actual college experiences. Findings indicated that student affairs programs which facilitated interaction with faculty (academic integration) and provided the opportunity for social involvement and participation (social integration) seemed to positively influence persistence in college irrespective of precollege characteristics; initial commitment; the selectivity; size or racial composition of the college attended; or ones' academic major (Stoecker, Pascarella, & Wolfe, 1988).

Astin (1968) used a sample of 669 students, from a larger sample drawn in 1961, from 248 accredited four year colleges to look at achievement. Overall academic ability was found to be the best single predictor of undergraduate achievement in social science. The students' mathematical aptitude was the most important predictor of achievement in natural sciences, whereas aptitudes in word usage and English were important in predicting achievement in the

humanities. Being a male was positively related to predicting achievement in natural and social sciences. Next to academic ability and gender the most important predictors of undergraduate achievement were the students' intended field of study and their career choice when entering college.

Pascarella (1984) studied 5,162 Caucasian males and females in 74 institutions. His model included input measures of academic aptitude, family background, high school achievement, and the output level of educational aspiration. Pascarella found that the best predictor of educational aspiration at the end of the sophomore year was entry level educational aspiration. In addition to the precollege aspirations, the only variables having effects on aspirations were measures of the college environment and a cumulative measure of college achievement.

Astin's (1977) longitudinal data on more than 200,000 students examined over 80 different student outcomes as compared to several different types of involvement. The general conclusion to emerge from this analysis was:

> "....nearly all forms of student involvement are associated with greater-than-average change in the characteristics of entering freshmen. And for certain student outcomes involvement is more strongly associated with change than either entering freshmen's

characteristics or institutional characteristics. (Astin, 1985, p. 147)

Personal and Social Development

Dormitory or Fraternity/Sorority and Athletic and Recreation Facilities. The theory of student involvement had its roots in a longitudinal study of college dropouts directed at identifying environmental factors that significantly affect student persistence. Astin (1975) found that the most important environmental factor was living in a campus residence. This effect occurred across all institution types and all student types regardless of gender, race, ability, or family background. Previously, Chickering (1974) obtained similar results in his comparison of commuter students and resident students. He found that students living in private homes, rooms, and apartments shared more similarities with commuters than with campus residents.

Betz, Menne, Starr, and Klingensmith (1971) designed a systematic study of college student satisfaction utilizing the College Student Satisfaction Questionnaire (CSSQ). This study appeared to give considerable support to student living quarters as one of the important dimensions of college student satisfaction. Astin (1977) made the assumption that students who lived in campus residences had more opportunities and incentives to become involved in

campus life than students living at home. Astin expected that students living on campus would be the most involved in the institutional environment, students living at home would be the least involved, and students living in private homes off campus would fall in between. Astin (1973, 1975) and Chickering (1974) reported that students who lived in campus residences had more contact with faculty, more interaction with student peers, performed better academically, and were more satisfied with their undergraduate experience than commuter students. Commuter students were less involved in every way than their resident peers (Chickering, 1974).

Eating, sleeping, and spending their waking hours on the college campus, residents had a better chance than commuter students to develop a strong identification and attachment to undergraduate life (Astin, 1984). From a study addressing factors in the college environment that significantly affect students' persistence, Astin (1985), concluded that living on campus increased the chance students would persist in college and aspire to obtain higher degrees. Campus residents were likely to achieve in extracurricular activities and express satisfaction with their undergraduate experience. Pennington, Zvonkovic, and Wilson (1989) found that students who lived in fraternity or sorority houses reported high satisfaction with college.

Williams and Reilley (1972) studied single student residences and discovered that students viewed their residence hall environment and the college environment in much the same way. Campus residents living in small dormitories were more satisfied with social opportunities, intellectual interaction, and housing than residents in large dormitories and students living at home. Residents of large dormitories were second highest in expressing dissatisfaction with housing. Students living with their parents reported the most dissatisfaction (Sinnet, Sachson, & Eddy, 1972). Sauber (1972) assumed that college students' place of residence had a substantial impact on academic performance and personal-social adjustment to the college environment. Astin (1973) maintained that living in a dormitory clearly increased the likelihood that students would be satisfied with their overall undergraduate experience.

Pace (1984) concluded that one of the best predictors of students' progress toward personal and social development was the use of athletic and recreation facilities. According to Hossler (1985), student services that provided athletics, activities, and residential life had a major impact on the environment of the campus. It was important to put an emphasis on the environment as well as an emphasis on the quality of student life. Results of

a longitudinal study on interpersonal relationships of students from their freshman to their senior year revealed that senior students who reported active participation in campus activities, recreational activities, and work experience obtained higher scores on the Quality of Relationships scale than those who reported little or no participation as seniors. No difference was found in the results when these students were freshmen (Riahinejad & Hood, 1984). The results of Clarke's (1987) study charting students' interaction with the campus environment indicated organized opportunities such as community services, cultural events, university activities, and sports were responses to students' priorities and goals and produced satisfaction. Astin (1975) found that participation in varsity athletics reduced the chance of attrition by 1% for white men and 5% for white women and blacks in white colleges. Participation in sports, particularly intercollegiate sports, had an especially pronounced effect on persistence. Athletic involvement was associated with satisfaction in four areas: academic reputation of the institution, intellectual environment, friendships with other students, and institutional administration. Satisfaction of those who were involved in athletics were similar to those who were academically involved (Astin, 1985).

General Education, Literature, and Arts

Art, Music, Theater and Student Acquaintances.

Pascarella (1980) compiled a review and synthesis of research results pertaining to the relationship between faculty-student informal contact and various college outcomes. Within colleges and socializing organizations Pascarella found student behavior, attitude, and educational outcomes were influenced by the institutions' structural factors (organizational size, living arrangements, administrative policies, and academic curriculum) and also through interaction with important agents of socialization (peers, faculty members, and administration). Social life was an important and satisfying activity for the majority of students in college. Students who viewed their social lives positively were expected to be more satisfied with their college experience (Betz, Klingensmith & Menne, cited in Bean & Bradley, 1986).

Betz, Starr, and Menne (1972) used the CSSQ to answer questions on how satisfied students were with their colleges. They used large public colleges and small private colleges. Public college students reported that they were more satisfied with social life and working conditions than private college students. Private college students reported that they were more satisfied with

recognition, quality of education, and compensation for effort. Bean and Bradley (1986) found that programs which created a sense of belonging to and identification with the institution--orientations, residence hall programs, opportunities to make friends in smaller groups, Greek organizations, and other gatherings--increased women's satisfaction with college and indirectly increased grade point average. Clarke (1987) used the CSE questionnaire to look at student-environment fit. He found that informal social activity (fun) seemed to be the institutional activity that best converted student goals and orientations to satisfaction and the decision to persist in college.

Chickering (1974) compared commuter and resident students. In this study he found that resident students engaged more fully in their academic programs and the associated intellectual activities. Astin (1973) found that resident students were more likely to be satisfied with the college environment. Satisfaction was shown to be related to several of the differences Chickering (1974) found between resident and commuter students. Residents had more frequent and wide ranging contact with faculty members and other students. They took part in extracurricular opportunities and assumed leadership roles more frequently. Commuters had less frequent exchanges with faculty and peers and were less involved than their

resident counterparts. Other differences found between the two types of students were that resident students attended cultural events and discussed political, religious, and social issues more frequently than did commuters.

Intellectual Skills

Information in Conversation and Course Learning. Spady (cited in Bean & Bradley, 1986) maintained that satisfaction depended directly on one's social integration, grade performance, and intellectual development. Intellectual development and grade performance were determiners of the amount of the individual's academic integration into college (Tinto, 1975). Students who participated in honor programs gained substantially in interpersonal and intellectual self- esteem and artistic interests. Honor's participation was positively related to student satisfaction in three areas: quality of the science program, faculty-student relationships, and the quality of instruction. Participation in honor programs was negatively related to satisfaction with friendships and with the institution's academic reputation. Being academically involved (the extent to which students worked hard at their studies, the number of hours they spent studying, the degree of interest in their courses, good study habits) was strongly related to satisfaction with all aspects of college life except friendship with other

students (Astin, 1984).

Terenzini, Theophildes, and Lorang (1984) conducted a study of 1,360 prospective freshmen attending public universities. They used the Student Information Form (SIF) developed by Astin. The SIF solicited a variety of information about students' personal, family, and educational background, and their educational expectations and aspirations. Students' percentile rank in their high school class and the level of involvement in their freshman year courses were the two best predictors of academic skill development; both were positive predictors. Self-reported academic skill development during the sophomore year appeared to be influenced by the amount of growth experienced during the freshman year and to a lesser degree by students' level of involvement in their sophomore year courses and the quality of their out of class academic contact with faculty. Students' junior year level of involvement in their course work appeared to be the best single predictor of reported amount of academic skill development during the junior year, but the influence of sophomore and freshman year progress ran a close second and third, respectively. It appeared that frequency of contact with faculty rather than quality of contact was essential for students' junior year growth. Students reported that they grew each year in their mastery of academic skills

(critical thinking, evaluative skills, and application of abstract principles).

Hines, Cruickshank, and Kennedy (1985) revealed that clarity behaviors were positively and significantly related to the dual measures of learner satisfaction and achievement. The following teacher behaviors were related to learner achievement and satisfaction: used relevant examples during explanations; reviewed material; asked questions to find out if students understood; answered student questions appropriately; repeated things when students did not understand; taught in a step-by-step manner; provided time for practice; taught the lesson at a pace appropriate for students; explained things and then stopped so that students could think; informed students of lesson objectives or what they were expected to be able to do on completion of instruction; and presented the lesson in a logical manner.

In another study looking at classroom learning, Bayley (1984) found that classroom management which emphasized achievement enhanced student satisfaction. Rosenblum and Darkenwald (1983) conducted a study on learner participation in course planning. They found that participation in course planning resulted in better designed courses relevant to student needs and therefore led to greater achievement and satisfaction. Direct

participation in the planning in itself was not found to have had any effects. According to Hendel (1985), the freedom to design one's own degree program in college resulted in significantly higher levels of satisfaction with undergraduate education.

Bean and Bradley (1986) conducted a study of satisfaction and performance based on a job satisfaction model. They concluded that when students found their course work more difficult than they expected it had a negative influence upon satisfaction for both men and women. Men's level of satisfaction was less influenced by finding course work difficult than was women's. In the same study, utility of course work was investigated. Feeling a sense of self- development, that ones' education would lead to employment, and perceptions of institutional quality had a positive influence on satisfaction.

By living on campus, students had increased opportunities to become involved with their college environment. Living on campus led to an increase in student satisfaction with their colleges (Astin, 1973). When Chickering (1974) compared commuter students to resident students he found several differences in institutional involvement. Commuters less frequently: read books not required in courses, checked out a book or a journal from the library, typed homework assignments,

argued with an instructor in class, or discussed school work with friends. Commuters more frequently failed to complete an assignment and arrived at class late.

Understanding Science/Technology

Science/Technology and Writing. In some aspects of the college experience, quality of effort scores did not increase as students progressed from the freshman to the senior year of college. Perhaps the experience tended to reach a peak early in the college years. This was often the case with the "non-academic" aspects of college--such as the use of the student union and athletic facilities, and also with respect to clubs and organizations, and student acquaintances. One would not expect large additional gains each year when much effort and progress had already occurred during the freshman year. In the "academic" aspects of college--such as the use of the library, contacts with faculty members, course learning activities, science lab, and, to some extent, informational level of student conversations--one typically finds quality of effort scores that represent substantial gains with each successive year in college (Pace, 1984).

Brown (1982) compared the quality of Bible colleges to other four year universities in the United States. He used the CSE questionnaire as one of his measurement instruments. Brown found that quality of effort put forth

by Bible college students on various aspects of their total educational experience was roughly comparable to the amount of effort expended by other students. Due to the uniqueness of the curricula focus of the Bible colleges, very few gains were related to the science objectives. Bible colleges had a low degree of involvement and effort with science laboratories and with fine arts activities and performances. The biggest difference, found when contrasting Bible college students to other students, came in their experiences with writing. Experiences with writing at the Bible colleges seemed to be less intense and were less likely to involve faculty feedback.

In a study of 2,299 students at eight colleges, Pace (1984) concluded that when it came to writing, practice made progress. At the college where students reported having had the most essay exams and the most required papers, 79% of the students reported they had made substantial gains in their ability to write clearly and effectively. At the college where students reported having had the fewest essay exams and the fewest required papers, 48% of the students reported they had made substantial gains in their ability to write well. Further analysis (Pace, 1984) of writing activities were conducted with 13,000 students at 45 institutions, representing five institutional types. Pace found that students at selective

liberal arts colleges were more likely than students at other types of colleges to have spent 5 hours or more writing a paper, to have thought about grammar and syntax as they wrote, and to have written a rough draft and a revision before they turned it in. At each of the five institutional types, scores on the writing activity scale correlated with the other academically oriented CSE questionnaire scales (library, faculty, and course learning). Correlation coefficients were found between writing activities and two of the personal/social scales on the CSE questionnaire (personal experiences and student acquaintances), and both of the conversation scales. Gains in writing ability were consistently related to intellectual skills (a broad general education, and gains in analytic, synthesizing, and independent learning skills) and gains in knowledge and enjoyment of literature regardless of type of institution. From this analysis, Pace ascertained that writing was an activity that helped to integrate the students' educational experience and progress.

Vocation

Experiences with Faculty and Clubs and Organizations. Summaries of college student performance suggested that student involvement with faculty outside the classroom was desirable (Astin, 1977; Pascarella, 1980; Pascarella &

Terenzini, 1980). Pascarella (1980) conducted a critical review and synthesis of research on faculty-student informal contact, outside of class contact, and various outcomes of college. Pascarella found the general types of outcomes associated with the extent and quality of out of class contact were divided into the following areas: career plans and educational aspirations, satisfaction with college, intellectual and personal development, academic achievement, and college persistence. Terenzini et al. (1984) conducted a study based on Tinto's model of academic and social integration. This study supported the influence that faculty members had on student outcomes. Faculty were found to play an important role through both frequency and quality of their contact with students, whether inside or outside the classroom (Pascarella & Terenzini, 1980; Terenzini et al., 1984). Schmidt and Sedlacek (1972) found satisfaction was related to the number of professors with whom a student was acquainted. The more dissatisfied students knew fewer faculty. Endo and Harpel (1982) came to a general conclusion that the more faculty-student interaction the better. Several investigation results provided support that faculty-student association was a critical factor in student satisfaction and success (Pascarella, 1980; Endo & Harpel, 1982; Webb, 1987). Students who had frequent contact with faculty outside the

classroom were more likely to persist in college, exhibit higher levels of achievement, and be satisfied with college than students who were not involved with faculty outside the classroom (Schuh & Kuh, 1984). Pascarella (1980) found that students' general satisfaction with college and their attitudes toward various aspects of the college experience were positively associated with frequency of their informal non-classroom contact with faculty. Astin (1984) concluded that frequent interaction with faculty was more strongly related to satisfaction than any other student or institutional characteristic. Students who had frequent interaction with faculty members were more likely to express satisfaction with all areas of the institutional experience.

The most important determiner of attaining educational goals was not who went where to college but what they did when they got there (Pace, 1984). Learning and personal development in college were influenced by the experiences and activities students pursued while in attendance (Chickering, 1974). The quality of the student's experience could be measured in terms of the student's involvement in the college environment (Astin, 1977). It was the quality of effort that students put into the resources and opportunities available for learning and personal development that made a difference in students

getting closer toward achieving their educational goals (Pace, 1984). According to one motivational theory of involvement, people had a tendency to be attracted to and involved in activities that satisfied their needs. An individual's decision to participate depended on whether the college was able to provide the opportunities and facilities that satisfy his/her needs (Douglah, 1970). According to Astin (1975), participation in extracurricular activities, especially memberships in fraternities and sororities, was significantly related to staying in college. Student persistence to some extent depended on the amount of involvement in campus life. Research results have supported the contention that student involvement has positive relationships with retention, perceptions of college, and overall satisfaction with college (Astin, 1977; Pace, 1984).

Several studies have addressed student participation in extracurricular activities. The successful student has been reported as having participated in more activities in high school (Schmid & Reed, 1966). Study results have also reported that successful students participated in more campus activities in college (Sexton, 1965; Cohen & Brawer, 1970; Pascarella & Terenzini, cited in Nelson, Scott, & Bryan, 1984). Nelson et al. (1984) found that successful students who dropped out of college reported they were

performing adequately as students. These students, however, did not participate in activities as did the successful students who stayed in college. The successful dropouts were the least satisfied with their social lives when compared to other groups. Lack of participation might have been regarded as evidence that students might not be completely integrated into all aspects of college life (Goble, cited in Sexton, 1965). This fits Tinto's (1975) model of academic and social integration of the individual into college. Tinto placed emphasis on the importance of social integration which occurred through informal peer group association, semi-formal extracurricular activities, and interaction with faculty and administrative personnel. Academic integration was related to two factors, grade performance and intellectual development. Tinto also maintained that a person may be able to achieve integration in one area without doing so in the other.

Hartnett's (cited in Bean & Bradley, 1986) study of students who were actively involved as members in student organizations and athletics provided direct evidence that memberships increased grade point average. Hartnett assumed that there was a reciprocal relationship between grade point average and satisfaction. Hartnett determined that through this relationship memberships in student organizations and athletics indirectly increased

satisfaction. In opposition to Hartnett's study, Bean and Bradley (1986) found that the number of memberships in campus student organizations had virtually no effect on the students' level of satisfaction. In addition, Pennington, et al. (1989) found that the number of extracurricular activities students participated in did not relate to college satisfaction. Using the CSE questionnaire, Abrahamowicz (1988) explored the relationship of student organization membership to student perception, overall student involvement, and student satisfaction. Abrahamowicz found that student organization members' perceptions were significantly more positive when pertaining to relationships with faculty, administrators, and students. Student organization members' response to the CSE questionnaire indicated they had greater involvement in the overall college experience. Results from the satisfaction index on the CSE questionnaire indicated that when asked the question, "How well do you like college?", 65% of student organization members responded that they were enthusiastic about it as opposed to 17% of the non-members. Abrahamowicz's (1988) found that student organization members had an overall different attitude toward involvement and indicated that membership in student organizations was directly related to overall satisfaction.

Environment

Starr, Betz, and Menne (1972) contended that the theory of work adjustment could be applied to the study of student adjustment. The basic principle of this theory was that individuals seek to achieve and maintain correspondence with their environment. Like an employee, a student must interact effectively with his/her work (study) environment. For students, correspondence could be stated in terms of the individual fulfilling the requirements of the college environment (satisfactory grades) and the college environment meeting the needs of the individual student (leading to satisfaction). Satisfaction represents the extent to which individuals reported that the college environment was meeting their needs. Ecology imposed demands upon student's attention and also supplied programming support arranged so students could work toward satisfaction by interacting in the college environment (Hubener, cited in Clarke, 1987). If students do not like what they are doing or where they are, chances are they are wasting their time and not taking advantage of the resources and opportunities available in college (Pace, 1984).

According to Nafizger, Holland, and Gottfredson (1975), student's satisfaction, theoretically, was the outcome of the congruency between a student's personality

type and the college environment. Major field was used as environment in their study because it provided a well defined immediate sub-environment composed of people and activities that students were in contact with daily. It also provided a broad range of environments since many major fields were included. Personality type was determined by using the Self-Directed Search (SDS) which was based on Holland's six personality types. An environment code (major field) was also assigned. Congruency level between personality and environment was assessed. Consistency was measured by how the codes fell on Holland's hexagonal model. Differentiation was determined by the highest SDS scale minus the lowest scale. The greater the difference the more differentiated or less defined was the personality. A satisfied student would be expected to resemble the typical student at the college and have a well defined and consistent personality pattern. The dissatisfied student would be expected to be less like the typical student and to have a personality that was inconsistent and poorly defined.

Witt and Handal (1984) examined three predictors of satisfaction with college. They found that environmental perceptions had the strongest relationship to five components of satisfaction, measured by the CSSQ. Personality and congruency of personality and environment

had significant but weaker relationships to satisfaction. In a study of student satisfaction conducted at the University of California, Los Angeles, Pace (1984), found that when students reported that they were developing intellectual powers and their environment was characterized by a friendly supportive relationship with other students, they were satisfied with college. Much of the current knowledge pertaining to student satisfaction came from research conducted during a period of student unrest in the late 1960s and early 1970s (Bean & Bradley, 1986). Prior to the 1960s there was virtually no research concerning satisfaction. No definite answer was given to the question: How satisfied are students with their colleges? (Betz et al., 1972). Relatively few studies had focused on the seemingly important variable of college student satisfaction (Sturtz, 1971). By 1971 there was only scattered research pertaining to student satisfaction. These studies were generally based on logical consideration and not on research evidence. No systematic study had been conducted until Betz, et al. (1971) attempted to systematically study the components of college student satisfaction. They used the CSSQ on two samples of Iowa State University undergraduates. The study results appeared to give considerable support for four of the six dimensions of the CSSQ--educational goals, social life,

student living and working conditions, and compensation (study pressures)--as important components of college student satisfaction. A fifth dimension, recognition, was given some support as an important component of college student satisfaction. The sixth dimension, policies and procedures, was not considered to be an appropriate component of satisfaction. During the mid to late 1970s, however, college student satisfaction as a substantive area of investigation received little attention (Morstain, 1977).

Statement of Problem

The purpose of the researcher was to investigate quality of effort, place of residence, perception of the environment and students' opinions of college.

Importance of Research

Student retention and student satisfaction with the college experience have become "timely" issues for campus officials. However, efforts to use retention and satisfaction data were hampered by the absence of national normative data (Astin, et al., 1987). Results of longitudinal studies of freshmen who participated in the CIRP have made a substantial contribution to higher education literature in the past two decades. The purpose of these longitudinal studies was to assess student experiences and achievements during their undergraduate

years and to determine how different types of college environments affected student outcomes in four areas: satisfaction, talent development, involvement, and retention (Astin, et al., 1987). Many correlates of satisfaction have been studied: age (Sturtz, 1971; Astin, Korn, and Green, 1987), gender (Bean & Bradley, 1986), grade point average (Bean & Bradley, 1986), tenure (Starr, et al., 1972), size of institution (Porter, Snyder, Friedlander, & Pace, cited in Pace, 1984), place of residence (Williams & Reilley, 1972; Astin, 1973; Chickering, 1974; Astin, 1984; Pennington et al., 1989), faculty-student contact (Schmidt & Sedlacek, 1972; Astin, 1977; Pascarella, 1980; Endo & Harpel, 1982; Astin, 1984; Webb, 1987), participation (Astin, 1977; Pace, 1984; Abrahamowicz, 1988), correspondence (Starr et al., 1972) and congruence (Nafizger et al., 1975). Through continued studies on satisfaction, colleges and students will be able to change. Colleges can change by providing more meaningful experiences and opportunities for students and students by better understanding their relationship to the college (Schmidt & Sedlacek, 1972). Research seemed to be lacking in the area of student lives between the time they enter college until the time they exit (Pace, 1984). Further research is needed on the effort students put into the resources and opportunities available while they attend

college and its effect on educational outcomes.

Hypotheses

Each hypothesis was tested at the .05 level of significance.

1. The differences among mean opinions of college scores for undergraduate students according to personal and social development, vocation, and general education, literature, and arts will not be statistically significant.

2. The differences among mean opinions of college scores for undergraduate students according to personal and social development, intellectual skills, and general education, literature, and arts will not be statistically significant.

3. The differences among mean opinions of college scores for undergraduate students according to personal and social development, vocation, and intellectual skills will not be statistically significant.

4. The differences among mean opinions of college scores for undergraduate students according to vocation, intellectual skills, and general education, literature, and arts will not be statistically significant.

5. The differences among mean opinions of college scores for undergraduate students according to perception of environment, place of residence, and understanding science/technology will not be statistically significant.

Definitions of Variables

Independent Variables

All of the following definitions were based on Pace's (1984) descriptions:

Personal and Social Development - Measured by three Quality of Effort scales on the CSE questionnaire: (1) Athletic and Recreation Facilities, (2) Personal Experiences, and (3) Course Learning. Three levels were determined post hoc, low 35-52, intermediate 53-62 and high 63-89.

General Education, Literature, and Arts - Measured by two Quality of Effort scales on the CSE questionnaire: (1) Art, Music, Theater and (2) Student Acquaintances. Three levels were determined post hoc, low 23-35, intermediate 36-43 and high 44-64.

Intellectual Skills - Measured by two Quality of Effort scales on the CSE questionnaire: (1) Science and Technology and (2) Course Learning. Three levels were determined post hoc, low 27-44, intermediate 45-51 and high 52-68.

Understanding Science/Technology - Measured by two Quality of Effort scales on the CSE questionnaire: (1) Athletic and Recreation Facilities and (2) Writing. Three levels were determined post hoc, low 20-35, intermediate 36-43 and high 44-67.

Vocation - Measured by four Quality of Effort scales

on the CSE questionnaire: (1) Course learning, (2) Clubs and Organizations, (3) Athletic and Recreation Facilities, and (4) Experiences with Faculty. Three levels were determined post hoc, low 49-80, intermediate 81-93 and high 94-125.

Perception of Environment - Perception of the college environment was derived from The College Environment section in the CSE questionnaire. Eight characteristics were defined to determine students' perceptions. Three levels were determined post hoc, low 27-37, intermediate 38-42 and high 43-53.

Place of Residence - Students current living arrangements during the school year (1) dormitory or other college housing, (2) fraternity or sorority, or (3) private apartment, house, or with parents.

Dependent Variables

The following dependent variables were based on Pace's (1984) descriptions.

Satisfaction - Encountering college experiences that one perceives as gratifying or fulfilling. The first two items from the Opinions About College section on the CSE questionnaire were employed to estimate student satisfaction with college: "How well do you like college?" and "If you could start over again, would you go to the same college you are now attending?" Scores on these items

ranged from 2 to 8. The higher the score the greater the satisfaction.

Initiative/Benefits - Measured by the response to the following item on the CSE questionnaire: What is your opinion about the following statement: "If students expect to benefit from what this college or university has to offer, they have to take initiative." Scores on this item ranged from 1 to 4. A high score indicated that students reported that initiative led to college benefits.

Limitations

1) Results were based on the responses of students enrolled continuously at a single institution. To the extent that these students and their experiences differ from those at other institutions, the generalizability of these results may not be possible beyond the university researched.

2) The sample was drawn from a single university in which the student body profile was relatively homogeneous in terms of lifestyle and socioeconomic backgrounds. Due to these characteristics results might not be applicable beyond the university studied (Songer, 1987).

3) In generalizing from the results of this study several limitations associated with the general ex-post facto research (independent variables) needed to be considered (Songer, 1987).

Methodology

Setting and Subjects

The data were collected by Songer in the Spring of 1987 as a basis for his doctoral dissertation. The present study included analysis of data not utilized in Songer's study. The sample included 196 full-time undergraduate students attending Fort Hays State University. Approximately 40% of the subjects were male. Of the 196 subjects, 47 were freshmen, 49 were sophomores, 50 were juniors, and 50 were seniors. Current living arrangements of students were: dormitory or other college housing - 51, fraternity/sorority - 23, and private apartment, house, or with parents - 116. Students from each classification level were selected for the following age ranges: freshman - 17 to 19; sophomore - 18 to 20; junior - 19 to 21; and senior - 20 to 23. All subjects attended Fort Hays State University continuously; four consecutive years as seniors, three consecutive years as juniors, two consecutive years as sophomores, and the fall 1986 semester as freshmen. The grade point average for the students seemed inflated but they were close to the university's norm. Only 12.8% of the students reported their typical grades to be "C's" or lower, while 61.2% reported their typical grades to be "B's" or higher. The overall grade point average of full-time undergraduate students at Fort Hays State University

for the semester in which data were collected was a 2.82 on a 4.00 scale (Songer, 1987).

Instrumentation

The present study used the College Student Experiences (CSE) questionnaire developed by Pace. The CSE questionnaire is a set of highly reliable and valid scales. These scales measured the quantity and quality of effort that students invested in the college facilities and resources (Songer, 1987). Comprised of five sections, the CSE questionnaire focused on how students spent their time at college and what conditions in college influenced them (Abrahamowicz, 1988). The CSE questionnaire was based on students' self-reported information about their background, their status, their activities, and their gains. The accuracy of self-reported research depended on: (1) the clarity of the questions, (2) whether students had an adequate base in experience for answering the questions, (3) whether the test form was appropriate, and (4) whether students took the questions seriously and responded thoughtfully. Several factors described in the following text led Pace (1984) to determine that these conditions were met. (1) During pretesting students did not have trouble understanding the questions. (2) All questions were based on the current school year and were focused on specific activities and gains. This provided students with

a good base of experience. (3) More than 9,000 undergraduate students from 30 colleges and universities were tested to research the divergent meanings of CSE questionnaire response categories. Students first responded to statements about how often they engaged in various activities - "never", "occasionally", "often", or "very often". Second, students indicated the number of times they engaged in activities. When Pace and Friedlander (1982, p. 280) compared this information they concluded:

> (1) Differences in frequency definitions are related mainly to differences in the topic or subject matter of the activity. (2) Regardless of the topic, there are wide individual differences in the meaning attributed to each response category. (3) Despite individual differences, the group data show clear modal differences between occasionally and often and between often and very often. (4) These modal differences are apparent for all topics and at all institutions. (5) The typical or median difference in the meaning of each of the response categories is very small between one institution and the next, and between types of institutions. (6) Based on the present data there is no compelling need to develop separate norms for

different types of institutions, but one should nevertheless be aware of the fact that "often" at Amherst may indeed be a little more frequent than "often" at UCLA.

(4) From the inspection of many questionnaires, 95% of the respondents filled out the entire questionnaire carefully and neatly. Computer printouts were compared for every item response on the 1983 version of CSE questionnaire. Results indicated that never more than 2% of the students left an item blank. Several college administrators also reported that students liked the CSE questionnaire and students reported that they had learned more about themselves (Pace, 1984).

The first section of the CSE questionnaire, Background Information provided items that enable one to determine the relationships between the quality of effort and important personal characteristics and various college conditions. There were two types of information in this section--first, information about the individual: age, gender, marital status, racial or ethnic identification, educational level of parents, citizenship and foreign identification; and second information about student status in college: classification level, place of residence, whether one was a transfer student, grades, major field, educational aspirations, full-time or part-time attendance, amount of

time spent studying, amount of time spent working, and amount of family contribution toward college expenses (Pace, 1984).

The second section, the Quality of Effort scales, focused on how students used the major resources and opportunities for learning and personal growth provided by the college (Pace, 1984). There were 14 Quality of Effort scales, consisting of 6 to 12 activity measures each. A total of 142 activities were measured (Abrahamowicz, 1988). Pace (1984) broke down these 14 Quality of Effort scales into 2 principal areas. Seven scales assessed students' use of major campus facilities: classroom (courses), library, science facilities, cultural facilities (art, music, theater), student union, athletic and recreational facilities, and residence facilities (dormitory or fraternity/sorority). The remaining 7 scales addressed other opportunities for personal experiences and interpersonal associations: experiences with faculty, clubs and organizations, experiences in writing, personal experiences (related to self-understanding), student acquaintances, topics of conversation, and information in conversations.

In the present study quality of effort was measured according to the level of involvement students reported in each of the activities during the current school year.

Students were given a choice of four responses for each quality of effort activity; "never", "occasionally", "often", and "very often". A score of 1 was given for the response "never", a score of 2 was given for the response "occasionally", a score of 3 was given for the response "often", and a score of 4 was given for the response "very often". Combining all activity scores derived a quality of effort score for each of the scales (Pace, 1984). Activities ranged in the amount of effort invested in them, and some of the activities required more effort than others. Pace (1984, pp. 12-14) described the 14 Quality of Effort scales as follows:

Classroom (course learning scale) (10 activities)

From: relatively simple cognitive activities--such as taking notes, underlining, etc.

To: higher level cognitive activities--such as efforts to explain and organize

Library (10 activities)

From: routine, moderately exploratory use--such as using the card catalogue

To: increased amount of independent exploration and focused activity--as in browsing in the stacks, developing a bibliography

Facilities related to the Arts (Art, Music, Theater scale) (12 activities)

From: talking about attending

To: efforts toward greater understanding (seeking the views of experts and critics) and personal involvement

Facilities related to Science/Technology (principles, procedures, and computers) (12 activities)

From: memorizing, watching, reading

To: efforts to explain, experiment, and develop skills

Student Union (10 activities)

From: casual and informal use--had snacks, met friends, etc.

To: programmatic use--attended events, held meetings, etc.

Athletic and Recreation Facilities (10 activities)

From: generally informal use--exercise, games

To: greater efforts toward improvement and skilled performance

Dormitory or Fraternity/Sorority (10 activities)

From: general socializing

To: more personal exchanges--helping, sharing, studying together, working on projects

Experiences with Faculty (10 activities)

From: routine and casual

To: more serious contacts--such as discussing careers, inviting criticisms, seeking counsel

Clubs and Organizations (10 activities)

From: awareness of events and organizations

To: attending events, discussing programs, working in organizations

Experiences in Writing (10 activities)

From: general concern with words, grammar, revisions

To: seeking criticism from others, greater concern with clarity and style

Personal Experiences (10 activities)

From: general curiosity about understanding one's own behavior, and others--talked with friends, etc.

To: more focused and expertly informed sources on self-understanding--as in reading, taking a test, talking with a counselor

Topics of Conversations (12 items)

From: personal and interpersonal topics of immediate experience--jobs, movies, social events

To: intellectual and cultural topics concerning values and social issues

Student Acquaintances (10 activities)

From: making friends with different kinds of people--breadth

To: serious conversations with people who differ from you--depth

Information in Conversations (6 activities)

From: conversations in which information about the topic is relatively casual and infrequently introduced

To: conversations that typically have expertise, knowledge, and persuasiveness brought to bear on the topic

With respect to the psychometric properties of the above categories, Friedlander (cited in Songer, 1987, p. 49) made the following statements:

> (1) all items within a scale correlate positively with one another; (2) all items within a scale correlate positively with the scale score; (3) all scales consist primarily of a single factor or dimension in which, in nearly all cases, accounts for more than 70 percent of the variances; (4) the reliability of all scales (coefficient Alpha) is .70 or higher; (5) the scales have a high level of construct validity--that

is, the results obtained from these measures provide results one would predict from theory and previous knowledge; and (6) every scale exhibits a wide range of scores, extending from almost the highest possible score one could get on the scale to the lowest possible score, with the mean scores close to the center of the scale, and with generally quite normal distributions.

Another section, Opinions About College, was comprised of three items. An index of satisfaction was based on responses to the first two questions in the Opinions About College section: (Pace, 1984, pp. 50-51).

How well do you like college?

I am enthusiastic about it

I like it

I am more or less neutral about it

I don't like it

If you could start over again, would you go to the same college you are now attending?

Yes, definitely

Probably yes

Probably no

No, definitely

A score indicating the index of satisfaction was derived by giving 4 points to the most favorable response

to each question, 3 points to the next most favorable response, etc. Scores on the index ranged from 2 to 8. The scores 7 and 8 indicated student satisfaction with college and scores of 2 and 3 indicated a neutral to negative attitude toward college (Pace, 1984).

In a 1979 study of student satisfaction at the University of California, Los Angeles, students were divided into three groups; very satisfied, satisfied, and neutral to negative. Comparisons were then made among responses in these three groups to the 14 Quality of Effort scales, students' characterizations of the college environment, and students' ratings of progress toward all of the objectives. The research indicated that on every Quality of Effort scale, on every characterization of the environment, and on reported progress toward every objective, the highest (most favorable) mean scores were made by the students who were "very satisfied" with the University of California, Los Angeles. The next most favorable scores were made by students who were "satisfied" and the lowest (least favorable) mean scores were made by those students who were "neutral to negative" toward the University of California, Los Angeles. No exceptions were found with this pattern (Pace, 1984). The following distribution was produced from an analysis of responses from the cross-section of undergraduate students at the

University of California, Los Angeles:

Satisfaction Score

8 points	22% very satisfied
7 points	27%
6 points	28% satisfied
5 points	13%
4 points	7% neutral to negative
3 points	2%
2 points	1% (Pace, 1984, p. 51)

In the current study, this satisfaction index was used as a dependent variable to determine level of satisfaction. The third item in the Opinions About College section was used as a dependent variable to measure students' opinion of college initiative in relation to benefits of college. A score indicating the students' initiative/benefits was derived by giving 4 points to the most favorable, 3 points to the next most favorable, etc. Scores ranged from 1 to 4. A score of 4 represented that students indicated that initiative was necessary in order to benefit from college offerings. A score of 1 indicated students did not report initiative as being an important aspect in getting benefits from college.

Porter, Snyder, Friedlander, and Pace (cited in Pace, 1984) conducted a study of 12,000 students and ran a

stepwise multiple regression analysis of all the CSE questionnaire elements against the criterion of satisfaction (the satisfaction index score) separately for five different types of institutions--doctoral universities, public comprehensives, private comprehensives, liberal arts type I, and liberal arts type II (Pace, 1984). They found that in all types of colleges that the most important contributor to students' satisfaction was a friendly, supportive, helpful environment. Another factor contributing to satisfaction was an environment which strongly emphasized intellectual qualities. The Quality of Effort scales that contributed to satisfaction were the ones which involved personal/social relationships. Of the 55 variables explored on the CSE questionnaire, 32 variables were found to have correlation coefficients of .20 or higher with the satisfaction index. These 32 variables provided information on what contributed to students' satisfaction. Of the 32 correlation coefficients, 17 were ratings of the environment (with 12 of those referring to the supportiveness of personal relationships in the environment); 9 were estimates of progress toward important objectives (acquiring background and specialization for advanced education, breadth of knowledge and self-understanding); and 6 were Quality of Effort scales (all

related to group facilities and interpersonal relationships). None of the 32 variables came from the college status or the student characteristics categories (Pace, 1984).

The College Environment section of the CSE questionnaire allowed students to rate the college environment based upon their own perceptions of eight defined characteristics (Abrahamowicz, 1988). The first four asked the student to indicate the amount of emphasis placed on the development of certain aspects within the student. Those aspects were the emphasis on the development of scholarly academic qualities; emphasis on the development of esthetic and creative qualities; emphasis on being critical and analytical; and emphasis on the development of vocational competence. A fifth rating pertained to the emphasis on personal relevance and practical value of courses. Three of the scales referred to personal relationships within the college environment--relationships with other students, relationships with faculty, and relationships with administrative personnel (Pace, 1984). Seven points were possible on each of the eight items (Abrahamowicz, 1988), ranging from a positive perception (7) to a negative perception (1). In the present study a combined score of all 8 defined characteristics broken down into three levels provided a

measure of students' perception of the college environment.

In the final section, Estimate of Gains, students responded to 21 goal statements. These statements reflected typical objectives or goals of higher education. Responses were based on students' perceptions of emphasis placed on the following areas: course work, values, and relationships (Abrahamowicz, 1988). For each of the 21 goal or progress statements the student was asked, "To what extent do you feel you have gained or made progress?" The student had four response choices; "very little", "some", "quite a bit", or "very much". These self-reported gains indicated to what extent students perceived that they were achieving important college objectives (Pace, 1984).

In the 1983 version of the CSE questionnaire, an analysis was performed to assess the ability of the instrument to predict student achievement with respect to the 21 goal or progress statements. The results were based on the responses of 2,299 students at eight colleges. A factor analysis of the estimate of gains indicated that they could be grouped into the following five categories (Pace, 1984, pp. 45-46):

1. Personal and Social Development

   Understanding other people and the ability to get along with different kinds of people

Understanding yourself--your abilities, interests, and personality

Developing your own values and ethical standards

Ability to function as a team member

Developing good health habits and physical fitness

2. General Education, Literature and Arts

Broadening your acquaintance and enjoyment of literature.

Writing clearly and effectively

Developing an understanding and enjoyment of art, music, and drama

Becoming aware of different philosophies, cultures, and ways of life

Gaining a broad general education about different fields of knowledge

3. Intellectual Skills

Ability to think analytically and logically

Ability to put ideas together, to see relationships, similarities, and differences between ideas

Quantitative thinking--understanding probabilities, proportions, etc.

Ability to learn on your own, pursue ideas, and find information you need

4. Understanding Science/Technology

   Understanding new scientific and technical developments

   Understanding the nature of science and experimentation

   Becoming aware of the consequences (benefits/hazards/dangers/values) of new applications in science and technology

   Acquiring familiarity with the use of computers

5. Vocation

   Vocational training--acquiring knowledge and skills applicable to specific job or type of work

   Gaining a range of information that may be relevant to a career

   Acquiring background and specialization for further education in some professional, scientific, or scholarly field

An estimate of progress was found by adding students reported progress toward objectives in these five categories. These five categories of achievement were then used as a criteria of attainment, to be predicted or explained by the information received from the Quality of Effort scales. A stepwise multiple regression was incorporated to identify the Quality of Effort scales that

had the largest relationship with achievement, then the variable that had the next largest relationship, etc., until adding more variables contributed little or nothing more (less than 1%) toward the prediction of achievement (Pace, 1984). Results of this analysis found that one or more of the Quality of Effort scales made a significant contribution toward explaining achievement in relation to every one of the five main categories of achievement. The Quality of Effort scales predicting student progress toward the attainment of essential college objectives, listed in order of importance were (Pace, 1984, pp. 116-117):

1. Personal/Social Development
   - Dormitory or Fraternity/Sorority
   - Athletic and Recreation Facilities
   - Personal Experiences
   - Course Learning
2. General Education, Literature and Arts
   - Art, Music, Theater
   - Student Acquaintances
3. Intellectual Skills
   - Science/Technology
   - Information in Conversation
   - Course Learning
4. Understanding Science/Technology
   - Science/Technology

Athletic and Recreation Facilities

Writing

5. Vocation

Course Learning

Clubs and Organizations

Athletic and Recreation Facilities

Experiences with Faculty

The above breakdown was used to define five of the seven independent variables in the present study.

Design

A status survey design with predetermined and post hoc levels was employed. Five composite null hypotheses were tested employing 3 X 3 X 3 factorial designs.

Internal Validity. McMillan and Schumacher (1984) identified 10 threats to internal validity. The 10 threats were cited below and a description was given as to how they were dealt with in the present study.

History - Did not pertain. A status survey design was employed. All students who took the test were measured in the Spring of 1987.

Selection - All students were selected randomly from the population at Fort Hays State University, stratified according to age and continuous attendance.

Statistical Regression - Did not pertain. Respondents were not identified on the basis of extreme scores.

Testing - Did not pertain. There was no pretest and no posttest; therefore, no practice effect was present.

Instrumentation - The instrument was administered in the same way to all respondents and scored by a computer. Some students, however, were tested in groups while others were given the opportunity to fill out the questionnaire individually.

Mortality - Only respondents who completed both inventories were included.

Maturation - Did not pertain. A status survey design was employed.

Diffusion of Treatment - Did not pertain. No treatment was administered.

Experimenter Bias - Did not pertain. Data were collected for a different purpose than utilized in the present study.

Statistical Conclusion - One assumption was violated. There was not equal representation in all cells. A General Linear Model was employed. The researcher did not project beyond the statistics compiled.

External Validity. McMillan and Schumacher (1984) defined two threats to external validity. Each was cited below and a description was given as to how each was dealt with in the present study.

Population External Validity - All subjects were

randomly selected from a stratified sample according to age and continuous attendance. Fort Hays State University had a homogeneous population. No treatment was administered.

Ecological External Validity - No treatment was given. There was no pretest or posttest. Data were collected for a different purpose than utilized in the present study.

Data Collection Procedure

The data utilized in the present study were collected as a basis for Songer's (1987) doctoral dissertation at Kansas State University. Songer's study researched differences in cognitive development scores according to levels of quality of effort, grade point average, and college classification. Data collection took place during the Spring 1987 semester at Fort Hays State University. None of the null hypotheses and dependent variables in the present study were researched by Songer.

Research Procedure

The researcher conducted a computer search at Fort Hays State University Forsyth Library using the search titles: student satisfaction; student participation; student participant satisfaction; student satisfaction and grades; student satisfaction and dormitories; student satisfaction and college; student satisfaction and student attitude; student satisfaction, college, and dormitories; student satisfaction, college, and experiences; student

satisfaction, organizations, and student participation; and college student experiences. A second search was implemented using the term College Student Experiences questionnaire and the names of current researchers in that area: Pace, Astin, Friedlander, and Porter. Utilizing the above computer searches, the literature was surveyed and articles relevant to the study were selected. Several sources of literature were examined. A "hands on" search was conducted by looking through current issues of higher education journals and related literature. The researcher used the bibliography of Songer's (1987) doctoral dissertation. This provided the location of current sources of information and access to literature on the reliability and validity of the CSE questionnaire. Discussions were held with Songer, the previous researcher using the CSE questionnaire at Fort Hays State University. The present researcher selected dependent variables and null hypotheses which were not investigated in Songer's (1987) study. A proposal was written and defended. The data were computer analyzed by the computing center at Fort Hays State University. Final results were compiled, a final report was written, defended, and final editing completed.

Data Analysis

The following were compiled:

1. Descriptive statistics for all levels of all data sets,
2. Three-way analysis of variance (General Linear Model),
3. Bonferroni *t*-tests for means, and
4. Duncan's multiple-range test for means.

Results

The purpose of the researcher was to investigate quality of effort, place of residence, perception of the environment and students' opinions of college. Seven independent variables were researched: personal and social development, general education, literature and arts, intellectual skills, understanding science/technology, vocation, perception of environment and place of residence. Dependent variables measured were satisfaction and initiative/benefits. The CSE questionnaire was administered to 196 full-time undergraduate students attending Fort Hays State University. Five composite null hypotheses were tested using 3 x 3 x 3 factorial designs. The results section was organized according to composite null hypotheses for ease of reference. Information pertaining to each composite null hypothesis was presented in a common format for ease of comparison.

It was hypothesized in composite null hypothesis number 1 that the differences among mean opinions of

college scores for undergraduate students according to personal and social development, vocation, and general education, literature, and arts would not be statistically significant.

Table 1 contains information pertaining to composite null hypothesis number 1. The following were cited in Table 1: variables, sample sizes, means, standard deviations, F values, and p levels.

Table 1

A Comparison of Mean Opinions of College Scores for Undergraduate Students According to Personal and Social Development, Vocation, and General Education, Literature, and Arts Employing a Three-Way Analysis of Variance

Variable	n	M	s	F value	p level
		Satisfaction*			
Personal and Social Development (A)					
Low***	63	4.2	1.18		
Intermediate	62	4.7	1.33	0.17	.8400
High	65	4.9	1.35		
Vocation (B)					
Low***	63	4.0[a]	1.02		
Intermediate	63	4.7[b]	1.08	8.61	.0003
High	64	5.2[b]	1.52		
General Education, Literature, and Arts (C)					
Low***	60	4.4	1.29		
Intermediate	65	4.7	1.51	0.96	.3869
High	65	4.7	1.11		
Interactions					
A x B				1.65	.1793
A x C				1.77	.1364
B x C				1.14	.3380
A x B x C				1.57	.1589

(continued)

Table 1 (continued)

Variable	n	M	s	F value	p level
		Initiative/Benefits**			
Personal and Social Development (A)					
Low***	63	2.1	0.90		
Intermediate	62	2.2	0.98	0.09	.9104
High	65	2.3	1.06		
Vocation (B)					
Low***	63	2.0	0.84		
Intermediate	63	2.3	1.03	0.64	.5302
High	64	2.3	1.06		
General Education, Literature, and Arts (C)					
Low***	60	2.0	0.89		
Intermediate	65	2.2	0.91	2.50	.0851
High	65	2.3	1.12		
Interactions					
A x B				0.98	.4025
A x C				1.30	.2733
B x C				0.68	.6066
A x B x C				1.57	.1574

* Possible scores 2-8, the higher the score the greater the satisfaction.

** Possible scores 1-4, the higher the scores the higher the initiative/benefits.

*** Personal and Social Development [Athletic and Recreation Facilities, Personal Experiences and Course Learning (low < 53, intermediate 53-62, high > 62)]. Vocation [Course Learning, Clubs and Organizations, Athletic and Recreation Facilities and Experiences with Faculty (low < 81, intermediate 81-93, high > 93)]. General Education, Literature, and Arts [Art, Music, Theater and Student Acquaintances (low < 36, intermediate 36-43, high > 43)].

[ab] Difference statistically significant at the .05 level according to Bonferonni t-tests for means.

One of the 14 p values was statistically significant at the .05 level; therefore, the composite null hypothesis for this comparison was rejected. The significant comparison was the independent variable vocation and the dependent variable satisfaction. The results cited in Table 1 indicated that subjects who had reported intermediate and high vocation scores had significantly more satisfaction than those who had low vocation scores.

It was hypothesized in composite null hypothesis number 2 that the differences among mean opinions of college scores for undergraduate students according to personal and social development, intellectual skills, and general education, literature, and arts would not be statistically significant. Table 2 contains information pertaining to composite null hypothesis number 2. The following were cited in Table 2: variables, sample sizes, means, standard deviations, F values and p levels.

Table 2

A Comparison of Mean Opinions of College Scores for Undergraduate Students According to Personal and Social Development, Intellectual Skills, and General Education, Literature, and Arts Employing a Three-Way Analysis of Variance

Variable	n	M	s	F value	p level
		Satisfaction*			
Personal and Social Development (A)					
Low***	63	4.2	1.18		
Intermediate	62	4.7	1.33	2.85	.0607
High	65	4.9	1.35		
Intellectual Skills (D)					
Low***	127	4.6	1.31		
Intermediate	30	4.4	1.19	0.81	.4465
High	33	4.9	1.41		
General Education, Literature, and Arts (C)					
Low***	60	4.4	1.29		
Intermediate	65	4.7	1.51	1.42	.2456
High	65	4.7	1.11		
Interactions					
A x D				3.10	.0172
A x C				0.54	.7099
C x D				1.38	.2444
A x C x D				1.25	.2893

(continued)

Table 2 (continued)

Variable	n	M	s	F value	p level
		Initiative/Benefits**			
Personal and Social Development (A)					
Low***	63	2.1	0.90		
Intermediate	62	2.2	0.98	1.75	.1767
High	65	2.3	1.06		
Intellectual Skills (D)					
Low***	127	2.1[d]	0.92		
Intermediate	30	2.2	1.01	5.04	.0075
High	33	2.6[e]	1.15		
General Education, Literature, and Arts (C)					
Low***	60	2.0	0.89		
Intermediate	65	2.2	0.91	0.59	.5563
High	65	2.3	1.12		
Interactions					
A x D				3.04	.0187
A x C				0.09	.9850
C x D				0.74	.5658
A x C x D				0.57	.7212

* Possible scores 2-8, the higher the score the greater the satisfaction.

** Possible scores 1-4, the higher the scores the higher the initiative/benefits.

*** Personal and Social Development [Athletic and Recreation Facilities, Personal Experiences and Course Learning (low < 53, intermediate 53-62, high > 62)]. Intellectual Skills [Science and Technology and Course Learning (low < 44, intermediate 44-51, high > 51)]. General Education, Literature, and Arts [Art, Music, Theater and Student Acquaintances (low < 36, intermediate 36-43, high > 43)].

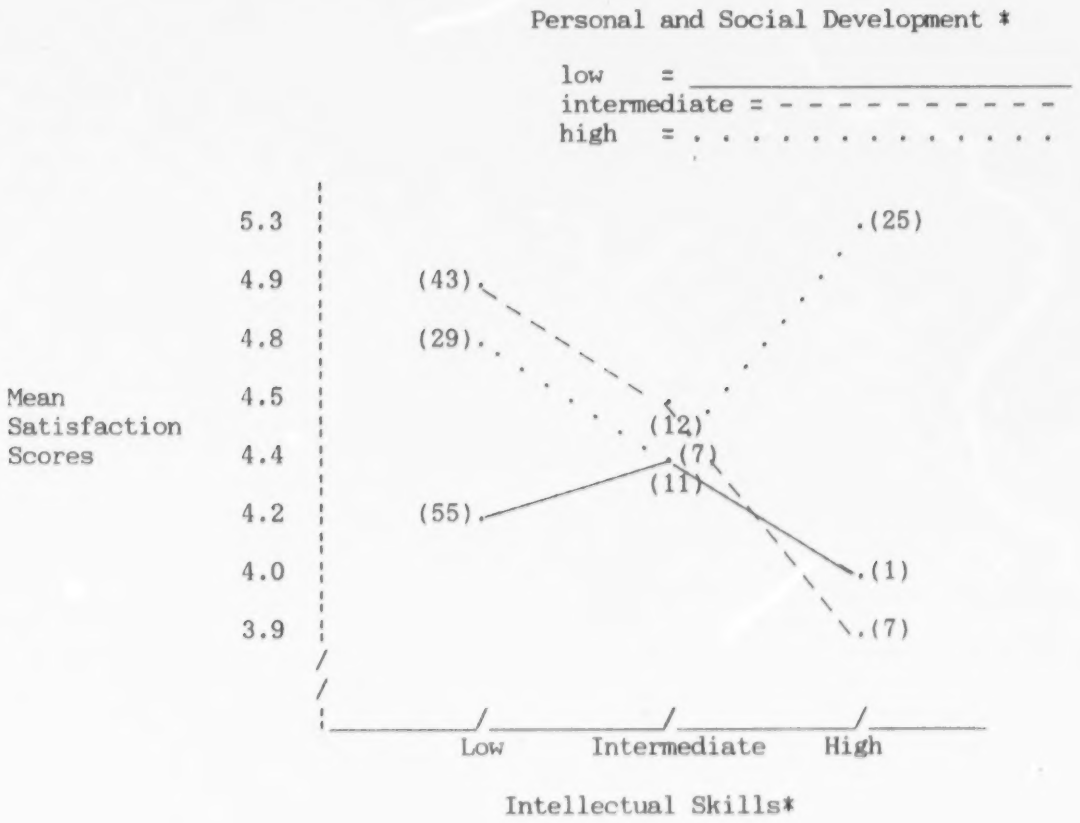
[de] Difference statistically significant at the .05 level according to Duncan's multiple-range test for means.

Three of the 14 p values were statistically significant at the .05 level; therefore, the null hypotheses for these comparisons were rejected. One of the significant comparisons was the main effect for the independent variable intellectual skills and the dependent variable initiative/benefits. The results cited in Table 2 indicated that those with a higher level of intellectual skills reported higher initiative/benefits than those with low intellectual skills.

Two of the significant comparisons were interactions. The significant interactions were between personal and social development and intellectual skills for the dependent variable satisfaction and personal and social development and intellectual skills for the dependent variable initiative/benefits. The interaction between personal and social development and intellectual skills for the dependent variable satisfaction was depicted in a profile plot. Figure 1 contains mean satisfaction scores and curves for personal and social development.

Figure 1

Interaction Between Personal and Social Development and Intellectual Skills for the Dependent Variable Satisfaction



* Intellectual Skills [Science and Technology and Course Learning (low < 44, intermediate 44-51, high > 51)]. Personal and Social Development [Athletic and Recreation Facilities, Personal Experiences, and Course Learning (low < 53, intermediate 53-62, high > 62)].

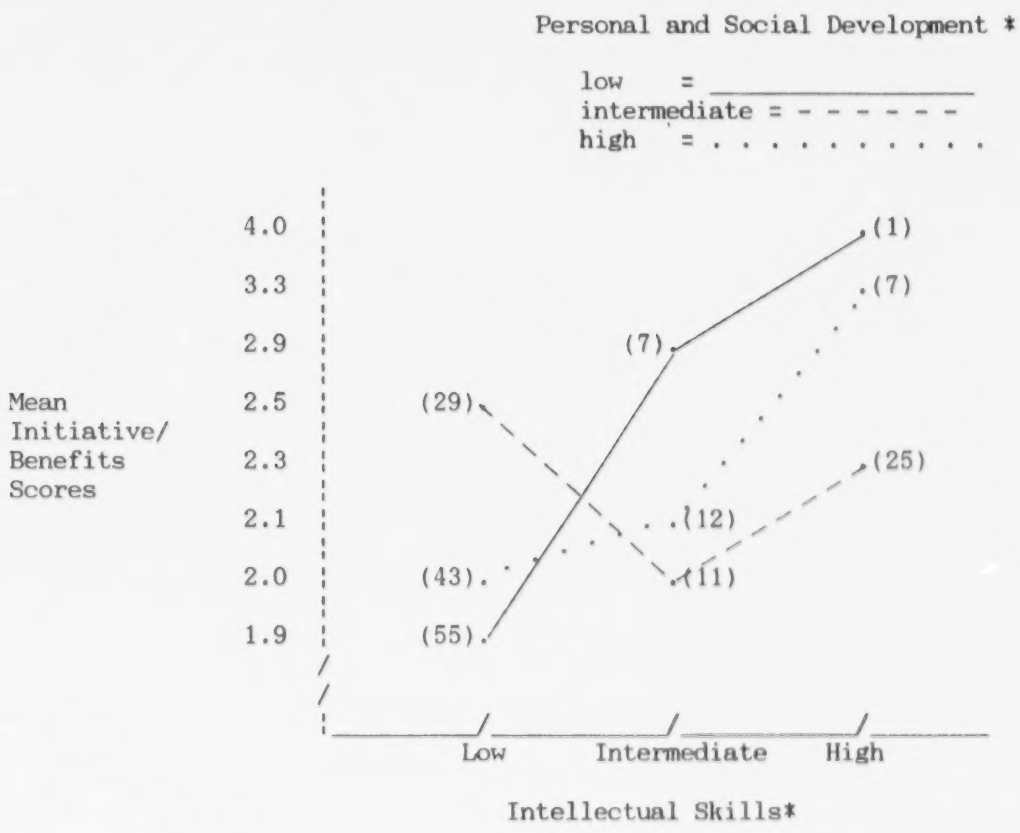
The interaction between personal and social development and intellectual skills for the dependent variable satisfaction was disordinal. The results cited in Figure 1

indicated the following: (1) the numerically highest satisfaction was reported by subjects who had high personal and social development and high intellectual skills and (2) the numerically lowest satisfaction was reported by subjects with intermediate personal and social development and high intellectual skills.

The interaction between personal and social development and intellectual skills for the dependent variable initiative/benefits was depicted in a profile plot. Figure 2 contains mean initiative/benefits scores and curves for personal and social development.

Figure 2

Interaction Between Personal and Social Development and Intellectual Skills for the Dependent Variable Initiative/Benefits



* Intellectual Skills [Science and Technology and Course Learning (low < 44, intermediate 44-51, high > 51)]. Personal and Social Development [Athletic and Recreation Facilities, Personal Experiences, and Course Learning (low < 53, intermediate 53-62, high > 62)].

The interaction between personal and social development and intellectual skills for the dependent variable initiative/benefits was disordinal. The results

cited in Figure 2 indicated the following: (1) subjects who had the lowest personal and social development and the highest intellectual skills reported the numerically highest initiative/benefits and (2) subjects who had the lowest intellectual skills and the lowest personal and social development reported the numerically lowest initiative/benefits.

It was hypothesized in composite null hypothesis number 3 that the differences among mean opinions of college scores for undergraduate students according to personal and social development, vocation, and intellectual skills would not be statistically significant.

Table 3 contains information pertaining to composite null hypothesis number 3. The following were cited Table 3: variables, sample sizes, means, standard deviations, *F* values, and *p* levels.

Table 3

A Comparison of Mean Opinions of College Scores for Undergraduate Students According to Personal and Social Development, Vocation, and Intellectual Skills Employing a Three-Way Analysis of Variance

Variable	n	M	s	F value	p level
		Satisfaction*			
Personal and Social Development (A)					
Low***	63	4.2	1.18		
Intermediate	62	4.7	1.33	2.20	.1136
High	65	4.9	1.35		
Vocation (B)					
Low***	63	4.0[a]	1.02		
Intermediate	63	5.0[b]	1.08	8.33	.0004
High	64	5.2[b]	1.52		
Intellectual Skills (D)					
Low***	127	4.6	1.31		
Intermediate	30	4.4	1.19	2.00	.1383
High	33	4.9	1.41		
Interactions					
A x B				1.85	.1404
A x D				0.74	.5636
B x D				1.35	.2520
A x B x D				0.97	.4101

(continued)

Table 3 (continued)

Variable	n	M	s	F value	p level
		Initiative/Benefits**			
Personal and Social Development (A)					
Low***	63	2.1	0.90		
Intermediate	62	2.2	0.98	0.83	.4372
High	65	2.3	1.06		
Vocation (B)					
Low***	63	2.0	0.84		
Intermediate	63	2.3	1.03	0.56	.5744
High	64	2.3	1.06		
Intellectual Skills (D)					
Low***	127	2.1[d]	0.92		
Intermediate	30	2.2	1.01	5.96	.0032
High	33	2.6[e]	1.15		
Interactions					
A x B				0.42	.7417
A x D				3.71	.0064
B x D				0.98	.4189
A x B x D				0.20	.8949

* Possible scores 2-8, the higher the score the greater the satisfaction.

** Possible scores 1-4, the higher the scores the higher the initiative/benefits.

*** Personal and Social Development [Athletic and Recreation Facilities, Personal Experiences, and Course Learning (low < 53, intermediate 53-62, high > 62)]. Vocation [Course Learning, Clubs and Organizations, Athletic and Recreation Facilities, and Experiences with Faculty (low < 81, intermediate 81-93, high > 93)]. Intellectual Skills [Science and Technology and Course Learning (low < 44, intermediate 44-51, high > 51)].

[a b] Difference statistically significant at the .05 level according to Bonferroni t-tests for means.

[d e] Difference statistically significant at the .05 level according to Duncan's multiple-range test for means.

Three of the 14 p values were statistically significant at the .05 level; therefore, the null hypotheses for these comparisons were rejected. Two of the significant comparisons were main effects. The significant main effects were for the independent variable vocation and the dependent variable satisfaction (recurring) and the independent variable intellectual skills and the dependent variable initiative/benefits (recurring). The interaction between personal and social development and intellectual skills for the dependent variable initiative/benefits was statistically significant (recurring).

It was hypothesized in composite null hypothesis number 4 that the differences among mean opinions of college scores for undergraduate students according to vocation, intellectual skills, and general education, literature, and arts would not be statistically significant.

Table 4 contains information pertaining to composite null hypothesis number 4. The following were cited in Table 4: variables, sample sizes, means, standard deviations, F values, and p levels.

Table 4

A Comparison of Mean Opinions of College Scores for Undergraduate Students According to Vocation, Intellectual Skills, and General Education, Literature, and Arts Employing a Three-Way Analysis of Variance

Variable	n	M	s	F value	p level
		Satisfaction*			
Vocation (B)					
Low***	63	4.0[a]	1.02		
Intermediate	63	4.7[b]	1.08	7.04	.0012
High	64	5.2[b]	1.52		
Intellectual Skills (D)					
Low***	127	4.6	1.31		
Intermediate	30	4.4	1.19	1.52	.2227
High	33	4.9	1.41		
General Education, Literature, and Arts (C)					
Low***	60	4.4	1.29		
Intermediate	65	4.7	1.51	0.08	.9277
High	65	4.7	1.11		
Interactions					
B x D				1.22	.3038
B x C				0.36	.8386
C x D				0.28	.8915
B x C x D				0.32	.9580

(continued)

Table 4 (continued)

Variable	n	M	s	F value	p level
		Initiative/Benefits**			
Vocation (B)					
Low***	63	2.0	0.84		
Intermediate	63	2.3	1.03	0.11	.8986
High	64	2.3	1.06		
Intellectual Skills (D)					
Low***	127	2.1[d]	0.92		
Intermediate	30	2.2	1.01	5.92	.0033
High	33	2.6[e]	1.15		
General Education, Literature, and Arts (C)					
Low***	60	2.0	0.89		
Intermediate	65	2.9	0.91	0.40	.6681
High	65	2.3	1.12		
Interactions					
B x D				1.57	.1856
B x C				0.47	.7580
C x D				2.01	.0961
B x C x D				1.90	.0637

* Possible scores 2-8, the higher the score the greater the satisfaction.

** Possible scores 1-4, the higher the scores the higher the initiative/benefits.

*** Vocation [Course Learning, Clubs and Organizations, Athletic and Recreation Facilities, and Experiences with Faculty (low < 81, intermediate 81-93, high > 93)]. Intellectual Skills [Science and Technology and Course Learning (low < 44, intermediate 44-51, high > 51)]. General Education, Literature, and Arts [Arts, Music, Theater, and Student Acquaintances (low < 36, intermediate 36-43, high > 43)].

[ab] Difference statistically significant at the .05 level according to Bonferroni t-tests for means.

[de] Difference statistically significant at the .05 level according to Duncan's multiple-range test for means.

Two of the 14 p values were statistically significant at the .05 level; therefore, the null hypotheses for these comparisons were rejected. These two significant comparisons were for the main effects of the independent variable vocation and the dependent variable satisfaction (recurring) and the independent variable intellectual skills and dependent variable initiative/benefits (recurring).

It was hypothesized in composite null hypothesis number 5 that the differences among mean opinions of college scores for undergraduate students according to perception of environment, place of residence, and understanding science/technology would not be statistically significant.

Table 5 contains information pertaining to composite null hypothesis number 5. The following were cited in Table 5: variables, sample sizes, means, standard deviations, F values, and p levels.

Table 5

A Comparison of Mean Opinions of College Scores for Undergraduate Students According to Perception of Environment, Place of Residence, and Understanding Science/Technology Employing a Three-Way Analysis of Variance

Variable	n	M	s	F value	p level
		Satisfaction*			
Perception of Environment (E)					
Low***	57	4.5	1.46		
Intermediate	66	4.7	1.30	0.55	.5759
High	67	4.7	1.20		
Place of Residence (F)					
Low***	51	4.2	1.19		
Intermediate	23	4.7	1.26	0.23	.7950
High	116	4.7	1.38		
Understanding Science/Technology (G)					
Low***	62	4.2	1.33		
Intermediate	60	4.7	1.27	0.35	.7042
High	68	4.8	1.29		
Interactions					
E x F				1.32	.2632
E x G				0.58	.6791
F x G				0.96	.4293
E x F x G				1.35	.2225

(continued)

Table 5 (continued)

Variable	n	M	s	F value	p level
		Initiative/Benefits**			
Perception of Environment (E)					
Low***	57	2.1	0.85		
Intermediate	66	2.1	1.00	1.16	.3162
High	67	2.4	1.07		
Place of Residence (F)					
On Campus Housing***	51	2.0	0.92		
Fraternity or Sorority	23	1.9	0.87	2.80	.0636
Apartment/House/Parents	116	2.3	1.02		
Understanding Science/Technology (G)					
Low***	62	2.0	0.84		
Intermediate	60	2.2	1.03	0.93	.3981
High	68	2.4	1.05		
Interactions					
E x F				1.04	.3883
E x G				0.16	.9567
F x G				0.07	.9917
E x F x G				0.44	.8969

* Possible scores 2-8, the higher the score the greater the satisfaction.

** Possible scores 1-4, the higher the scores the higher the initiative/benefits.

*** Perception of Environment [Eight Characteristics defined in The College Environment section of the CSE questionnaire (low < 38, intermediate 38-42, high > 42)]. Place of Residence [Students current living situation (On campus housing, Fraternity or Sorority, Apt/House/Parents)]. Understanding Science/Technology (Athletic and Recreation Facilities and Writing (low < 36, intermediate 36-43, high > 43)].

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None of the 14 p values were statistically significant at the .05 level; therefore, the composite null hypotheses for the comparisons were retained. The information cited in Table 5 indicated that there were no associations between independent and dependent variables.

Discussion

The purpose of the researcher was to investigate quality of effort, place of residence, perception of the environment and students' opinions of college. Seven independent variables were investigated: personal and social development, general education, literature, and arts, intellectual skills, understanding science/technology, vocation, perception of environment and place of residence. Two dependent variables were employed satisfaction and initiative/benefits. The College Student Experiences (CSE) questionnaire which provided 14 separate measures of student involvement and measured opinions of college was used in this study on a sample of 196 full-time students attending a four-year university. Five composite null hypotheses were tested utilizing 3 x 3 x 3 factorial designs. Forty-two comparisons plus 28 recurring were made. Of the 42 comparisons 14 were for main effects and 28 were for interactions. Of the 14 main effects 2 were statistically significant at the .05 level. The two significant main effects were for the independent variable

vocation and the dependent variable satisfaction and for the independent variable intellectual skills and the dependent variable initiative/benefits. Results indicated that subjects who had intermediate and high vocation scores had higher satisfaction than those with low vocation scores. Subjects with high intellectual skills registered greater initiative/benefits than those with low intellectual skills. Two of the 28 interactions were significant at the .05 level. The two significant interactions were for the independent variables personal and social development with intellectual skills for the dependent variable satisfaction and between the independent variables personal and social development with intellectual skills for the dependent variable initiative/benefits.

The findings in the present study were not consistent with previous findings about place of residence and satisfaction. Astin (1977) conducted a longitudinal study which focused on effects of types of involvement on student outcomes. Living on campus was positively associated with several forms of involvement and residents were more likely to express satisfaction with the undergraduate experience. Utilizing the CSSQ to measure satisfaction, Betz, Menne, Starr, and Klingensmith (1971) found student living quarters to be an important dimension of college satisfaction. No association appeared to occur in the

present study between place of residence and satisfaction.

The present study did not replicate findings on place of residence and initiative/benefits. Chickering (1974) found that when commuter students were compared to residence hall students that commuters were less involved in every way with their undergraduate experience. Astin (1985) concluded that by living on campus students had more opportunities to get involved. Living on campus also was related to increased persistence in college and increased aspirations.

In the present study personal and social development interacted with intellectual skills for the dependent variable satisfaction. Highest satisfaction was reported by subjects with high personal and social development and high intellectual skills. This is similar to Pace's (1984) findings in a study on satisfaction using students from the University of California at Los Angeles. Pace found that the two most important variables that influenced satisfaction were intellectual skills and a friendly supportive environment. Students who reported that they were developing intellectually and their environment contained friendly supportive peer relationships were satisfied. Along the same lines, the present study results appeared to show that the lowest satisfaction was reported by subjects with intermediate personal and social development and high intellectual skills. This

relationship is similar to Astin's (1984) summarization. Students who were academically involved were satisfied with all aspects of college life except friendships with students. Astin also found that involvement in honors programs was related to satisfaction in three areas: quality of the science program, quality of instruction, and closeness to faculty. Honors participation was negatively related to satisfaction with friendships.

Pace (1984) incorporated a stepwise multiple regression to identify Quality of Effort scales that were related to achievement. Two of the scales that were related to vocation achievement were: Clubs and Organizations and Experiences with Faculty. The present study showed an association between vocation scores and satisfaction. Abrahamowicz (1988) found that membership in student organizations was directly related to overall satisfaction with college. Unlike Abrahamowicz, (1988), Bean and Bradley (1986) and Pennington, et al. (1989) respectively found that number of memberships and number of extracurricular activities had no effect on level of satisfaction. Pertaining to experiences with faculty several researchers provided support that faculty-student contact was an important factor in student satisfaction and success (Pascarella, 1980; Endo & Harpel, 1982; Webb, 1987). Schmidt and Sedlacek (1972) concluded that students

who knew fewer faculty were more dissatisfied. Astin (1984) reported that frequent faculty-student contact was more strongly related to satisfaction than any other characteristic. The present study showed an association between vocation (Clubs and Organizations, Experiences with Faculty, Course Learning, and Athletic and Recreation Facilities) and the dependent variable satisfaction.

No relationship was found in the present study concerning vocation scores and initiative/benefits. These findings were not consistent with Abrahamowicz's (1988) results. He used the CSE questionnaire to research relationships of student organization membership to student perceptions, satisfaction, and overall involvement. He found that student organization members had an overall different attitude toward involvement and greater involvement in the entire college experience.

The current study results appeared to show no association between perception of environment and either dependent variable (satisfaction or initiative/benefits). Witt and Handal (1984) used the CSSQ to study congruency of person and environment and satisfaction with college. They found that environmental perceptions had the strongest relationship to five components of student satisfaction (working conditions, compensation, quality of education, social life, and recognition).

Five of the seven independent variables were discussed above. The two remaining independent variables, general education, literature, and arts and understanding science/technology did not appear to be associated with either dependent variable (satisfaction or initiative/benefits).

The results of the present study appeared to support the following generalizations:

1. Intermediate and high vocation scores were associated with greater satisfaction than low vocation scores.
2. High intellectual skills were associated with higher initiative/benefits than low intellectual skills.
3. The numerically highest satisfaction was reported by subjects who had high personal and social development and high intellectual skills. The numerically lowest satisfaction was reported by subjects with intermediate personal and social development and high intellectual skills.
4. The numerically highest initiative/benefits was reported by subjects who had low personal and social development and high intellectual skills. The numerically lowest initiative/benefits was reported by subjects who had low personal and social development and low intellectual skills.
5. Independent variables not associated with either dependent variable were: understanding

science/technology, perception of environment, place of residence, and general education, literature, and arts.

Results of the present study appeared to support the following recommendations:

1. Research was collected from one homogeneous four-year university which limited the generalizability of results; therefore, the study should be replicated with additional types of institutions to increase external validity.
2. The study should be replicated with a larger random sample.
3. The sample was stratified among four classification levels: freshman, sophomore, junior, and senior. The present study did not include classification as a variable. The study should be replicated with classification as a variable.
4. The study should be replicated using a larger random sample stratified for place of residence.
5. The sample should be replicated to further refine environment.
6. The sample should be replicated to further refine personal and social development.

The researcher suggested that the present study be replicated employing the aforementioned recommendations. Having generalizable results of students' opinions of

college from the time they matriculate until the time they exit college would provide colleges and universities with information about which experiences were most meaningful to their students. This information would enable educational institutions to provide and plan opportunities and facilities that might increase student satisfaction with college, increase students' opinions that initiative leads to benefits, and result in a higher quality educational experience.

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